

IN THE UNITED STATES PATENT
AND TRADEMARK OFFICE

APPLICATION FOR
UNITED STATES UTILITY PATENT

SEMISUBMERSIBLE VESSELS & MOORING SYSTEMS

Extra Set Claims - 1-24 - for PTO Examiner

INVENTORS

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1 CLAIMS:

2 1. A mooring system for a structure positionable with part
3 thereof under water, the mooring system comprising
4 rope,

5 rope reel/winch apparatus for holding the rope and
6 controlling the rope, the rope extendable from the rope
reel/winch apparatus,

7 the rope and rope reel-winch apparatus mounted on
8 the part of the structure which is positionable underwater,
9 the rope reel/winch apparatus operable when submerged.

1 2. The mooring system of claim 1 wherein the structure is
2 a semisubmersible vessel.

1 3. A mooring system for a structure positionable with part
2 thereof under water, the mooring system comprising
3 synthetic rope,

4 rope reel/winch apparatus for holding the synthetic
5 rope and controlling the synthetic rope, the synthetic rope
6 extendable from the rope reel/winch apparatus,

7 the synthetic rope and rope reel-winch apparatus
8 mounted on part of the structure.

1 4. The mooring system of claim 3 further comprising a
2 mooring line; and wherein the structure is a semisubmersible
3 vessel; wherein the mooring line comprises a triple combination
4 mooring line with three components including a first steel line
5 component, the synthetic rope as a second component, and a third
6 chain component; and wherein a first connector connects the first
7 steel line component to the synthetic rope, a second connector
8 connects the synthetic rope to the third chain component, and both
9 the first connector and the second connector are handleable,
10 connectible, and disconnectible at a location of the
11 semisubmersible vessel.

1 5. A semisubmersible vessel comprising
2 hull apparatus including a selectively submersible
3 portion thereof,
4 anchor apparatus,
5 mooring line apparatus for connecting anchor
6 apparatus to the hull apparatus with a mooring line, the
7 mooring line apparatus including synthetic rope, and
8 the mooring line apparatus comprising submersible
9 rope reel-winch apparatus mounted on the selectively
10 submersible portion of the hull apparatus.

1 6. The semisubmersible vessel of claim 5 wherein the mooring
2 line comprises a triple combination mooring line with three
3 components including a first steel line component, a second
4 synthetic rope component, and a third chain component.

1 7. The semisubmersible vessel of claim 6 wherein a first
2 connector connects the first steel line component to the second
3 synthetic rope component, a second connector connects the second
4 synthetic rope component to the third chain component, and both the
5 first connector and the second connector are handleable,
6 connectible, and disconnectible at a location of the
7 semisubmersible vessel.

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2 8. The semisubmersible vessel of claim 5 further comprising
3 a power mechanism on the semisubmersible vessel for powering the
4 rope reel/winch apparatus.

1 9. The semisubmersible vessel of claim 8 wherein the power
2 mechanism is on the selectively submersible portion of the hull
3 apparatus and is operable while submerged.

1 10. The semisubmersible vessel of claim 5 wherein the anchor
2 apparatus comprises a plurality of anchors and the mooring line
3 apparatus comprises a plurality of mooring lines, each of said
4 mooring lines connected to an anchor.

1 11. The semisubmersible vessel of claim 5 wherein the hull
2 apparatus comprises a plurality of spaced-apart selectively
3 submersible pontoons.

1 12. The semisubmersible vessel of claim 5 further comprising
2 a deck on the hull apparatus.

1 13. The semisubmersible vessel of claim 5 further comprising
2 rig apparatus on the deck.

3 14. The semisubmersible vessel of claim 6 further comprising
4 a deck on the hull apparatus, and
5 deck chain reel/winch apparatus mounted on the deck
6 for the first chain component and deck steel line reel/winch
7 apparatus mounted on the deck for the second steel line
8 component.

1 15. The semisubmersible vessel of claim 5 further comprising
2 tensioning apparatus secured to the semisubmersible
3 vessel for selectively tensioning the rope.

1 16. The semisubmersible vessel of claim 15 wherein the
2 tensioning apparatus is locatable above the water line when the
3 selectively submersible portion of the hull is submerged.

1 17. The semisubmersible vessel of claim 15 wherein the
2 tensioning apparatus is locatable below the water line when the
3 selectively submersible portion of the hull is submerged.

1 18. A semisubmersible vessel comprising
2 hull apparatus including a selectively submersible
3 portion thereof,
4 anchor apparatus,
5 mooring line apparatus for connecting the anchor
6 apparatus to the hull apparatus with a mooring line, the
7 mooring line apparatus comprising a triple combination mooring
8 line with three components including a first chain component,
9 a second steel line component, and a third rope component,
10 the mooring line apparatus comprising submersible

rope reel-winch apparatus mounted on the selectively submersible portion of the hull apparatus associated with the third rope component for controlling, storing and retrieving the third rope component and from which the third rope component is extendable,

wherein the submersible rope reel-winch apparatus includes a power mechanism operable while submerged,

wherein the anchor apparatus comprises a plurality of anchors and the mooring line apparatus comprises a plurality of mooring lines, each of said mooring lines connected to an anchor,

wherein the selectively submersible portion of the hull apparatus comprises a plurality of spaced-apart selectively submersible pontoons,

the semisubmersible vessel having a deck on the hull apparatus,

the semisubmersible vessel having deck chain reel/winch apparatus mounted on the deck for controlling the first chain component and deck steel line reel/winch apparatus mounted on the deck for controlling the second steel line component, and

tensioning apparatus secured to the semisubmersible vessel for selectively tensioning the third rope component.

19. A semisubmersible vessel comprising

hull apparatus including a selectively submersible portion thereof,

anchor apparatus,

mooring line apparatus for connecting anchor apparatus to the hull apparatus with a mooring line, the mooring line apparatus including synthetic rope, and

the mooring line apparatus comprising rope reel-winch apparatus mounted on the semisubmersible vessel.

20. A method for mooring a structure in water, at least part of the structure submerged in the water, the method comprising mooring the structure with mooring line apparatus, the mooring line apparatus including at least one mooring line and the mooring line apparatus for connecting anchor apparatus to the structure with a mooring line, the mooring line apparatus including synthetic rope and synthetic rope reel-winch apparatus mounted on the structure.

21. The method of claim 20 wherein the mooring line apparatus comprises a triple combination mooring line with three components including a first steel line component, a second synthetic rope component, and a third chain component, and wherein a first connector connects the first steel line component to the second synthetic rope component, a second connector connects the second synthetic rope component to the third chain component, and both the first connector and the second connector are handleable, connectible, and disconnectible at a location of the structure, the method further comprising

connecting the first steel line component to the second rope component at said location, and

connecting the second synthetic rope component to the third chain component at said location.

22. The method of claim 21 wherein the mooring line apparatus includes chain reel/winch apparatus mounted on the structure for controlling the third chain component and steel line reel/winch apparatus mounted on the structure for controlling the first steel line component, the method further comprising

controlling the third chain component with the chain reel/winch apparatus and controlling the first steel line component with the steel line reel/winch apparatus.

1 23. The method of claim 20 including anchor apparatus for
2 anchoring the structure, the anchor apparatus comprising a
3 plurality of anchors and the mooring line apparatus comprising a
4 plurality of mooring lines, each of said mooring lines connected to
5 an anchor.

1 24. The method of claim 20 wherein the structure is a
2 semisubmersible vessel.

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Fig. 1

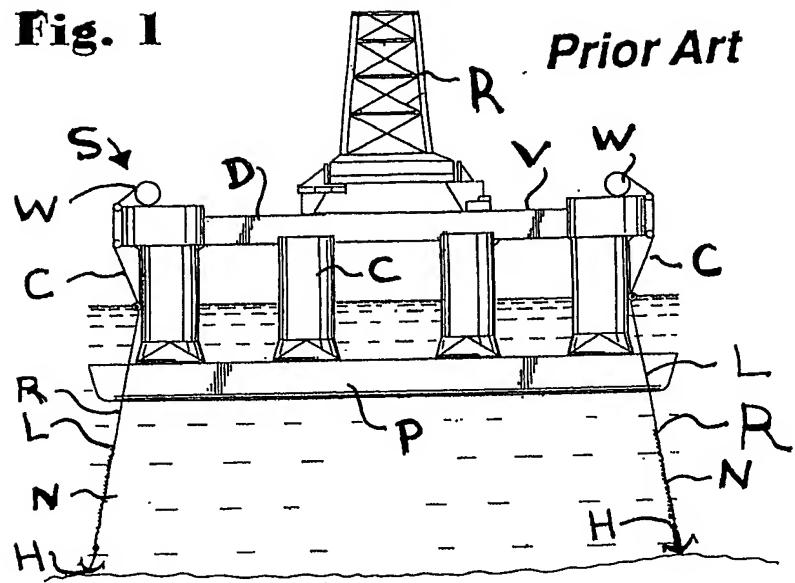


Fig. 2

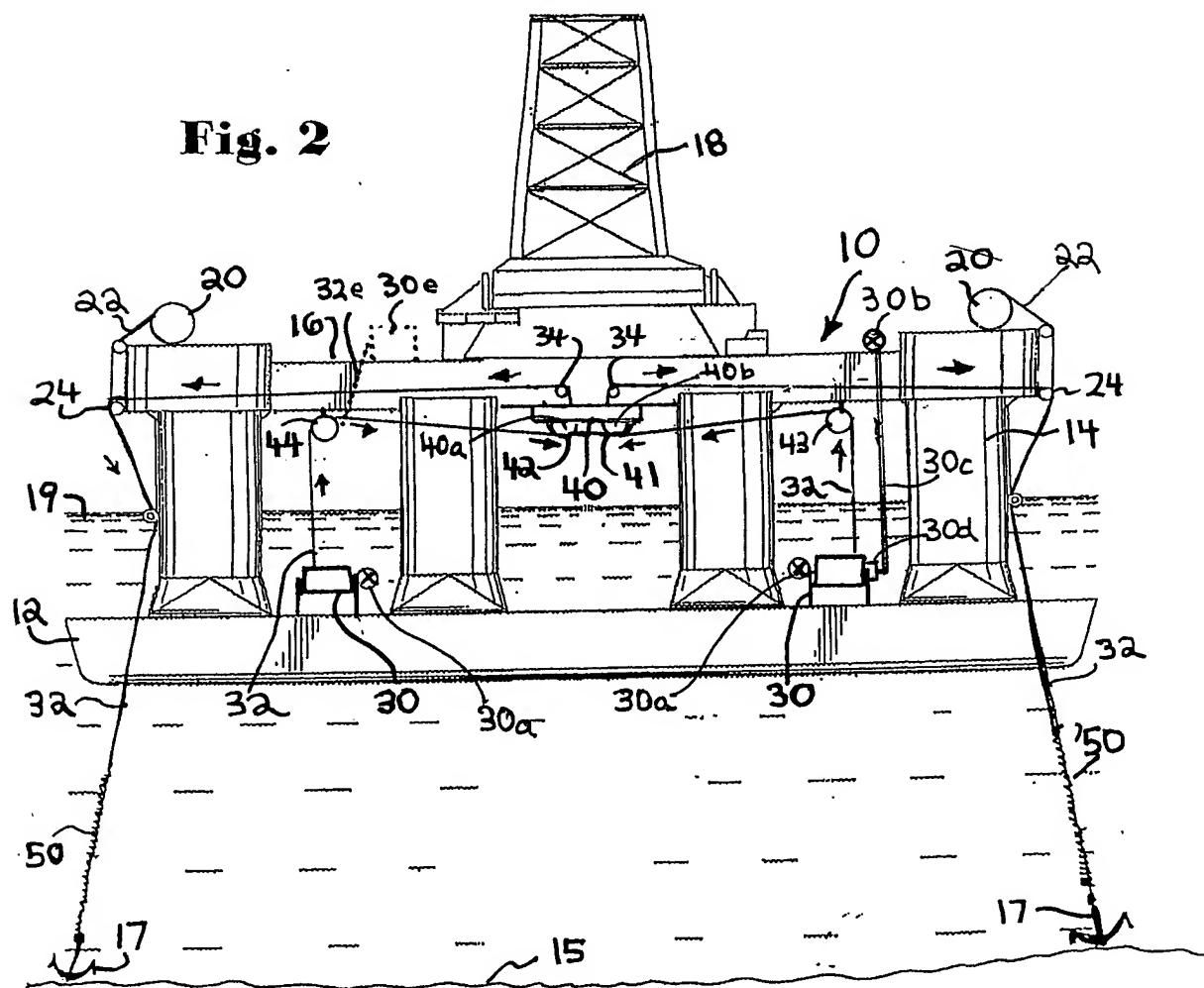
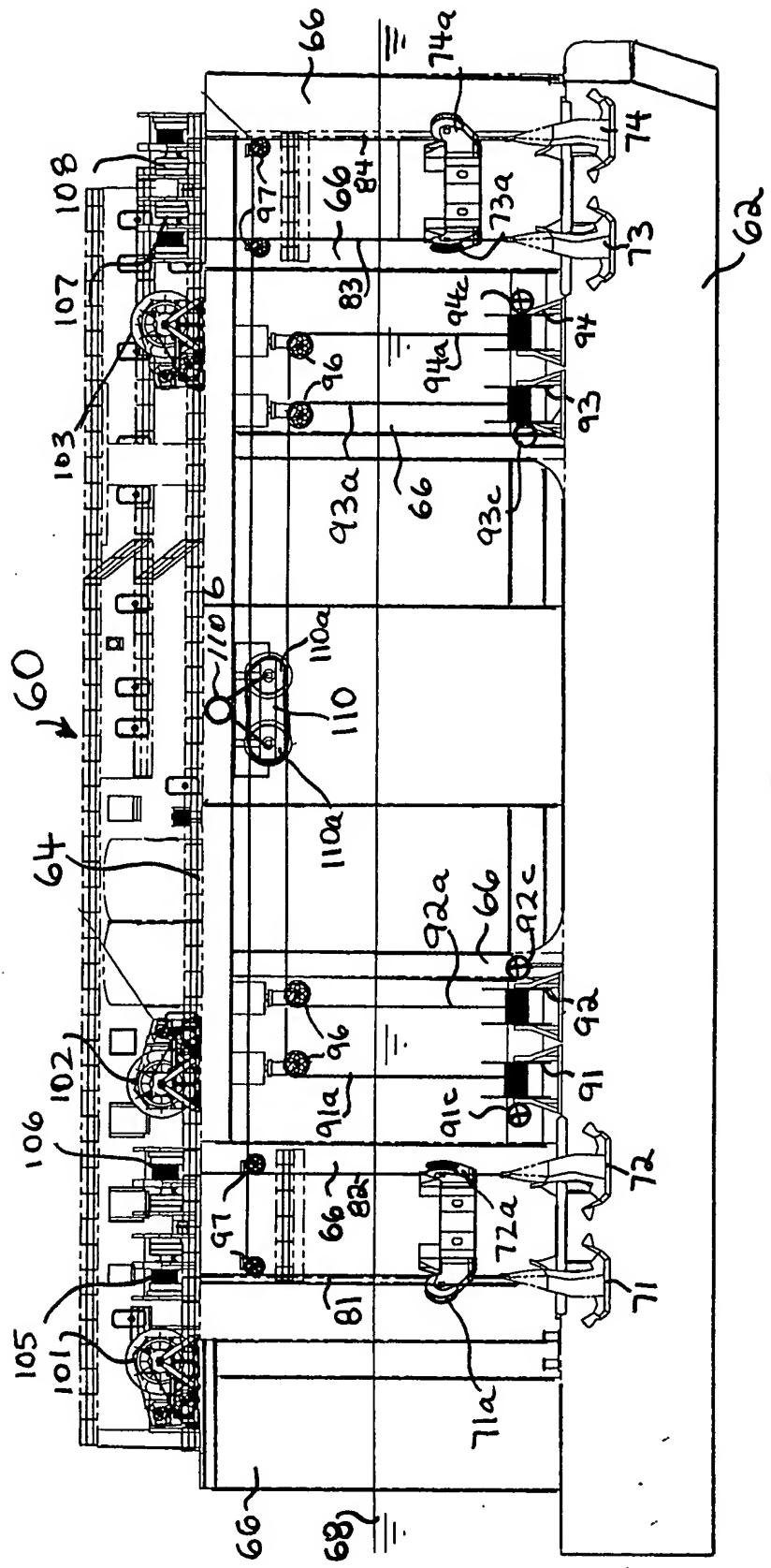


Fig. 3



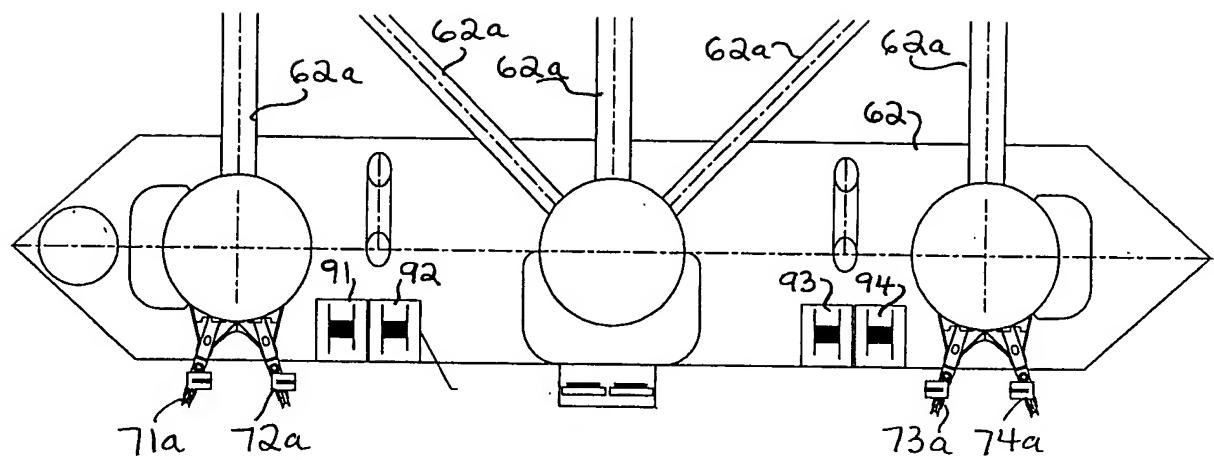


Fig. 4A

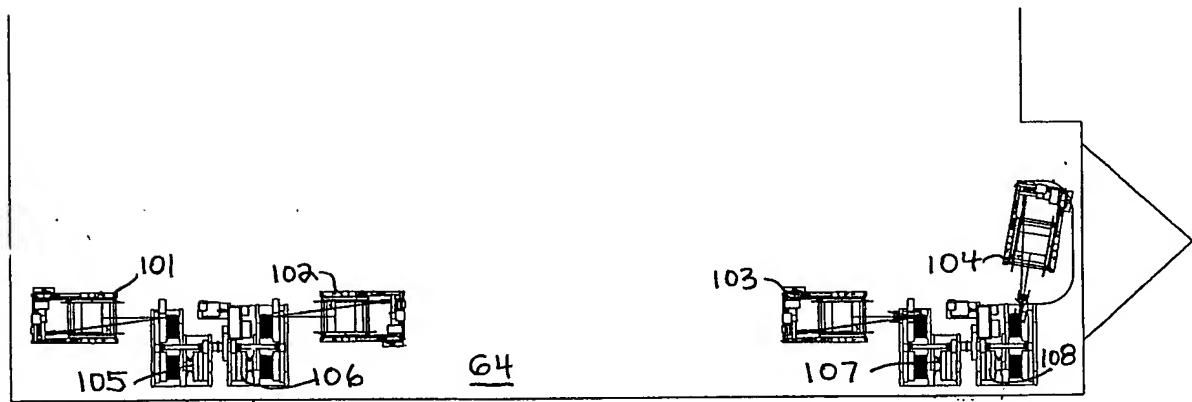


Fig. 4B

Fig. 5A

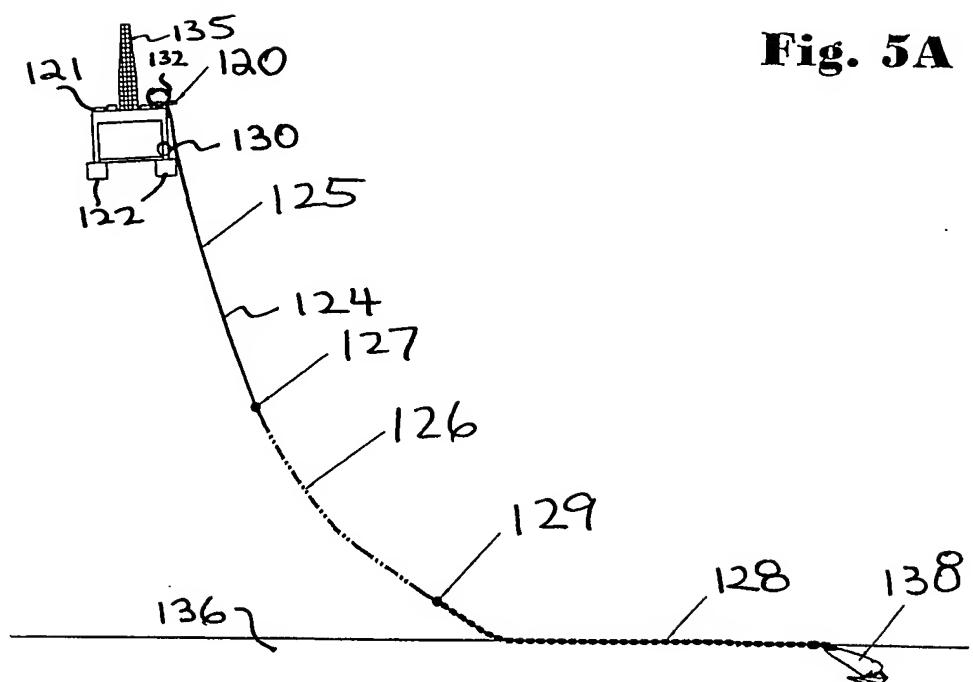


Fig. 5B

